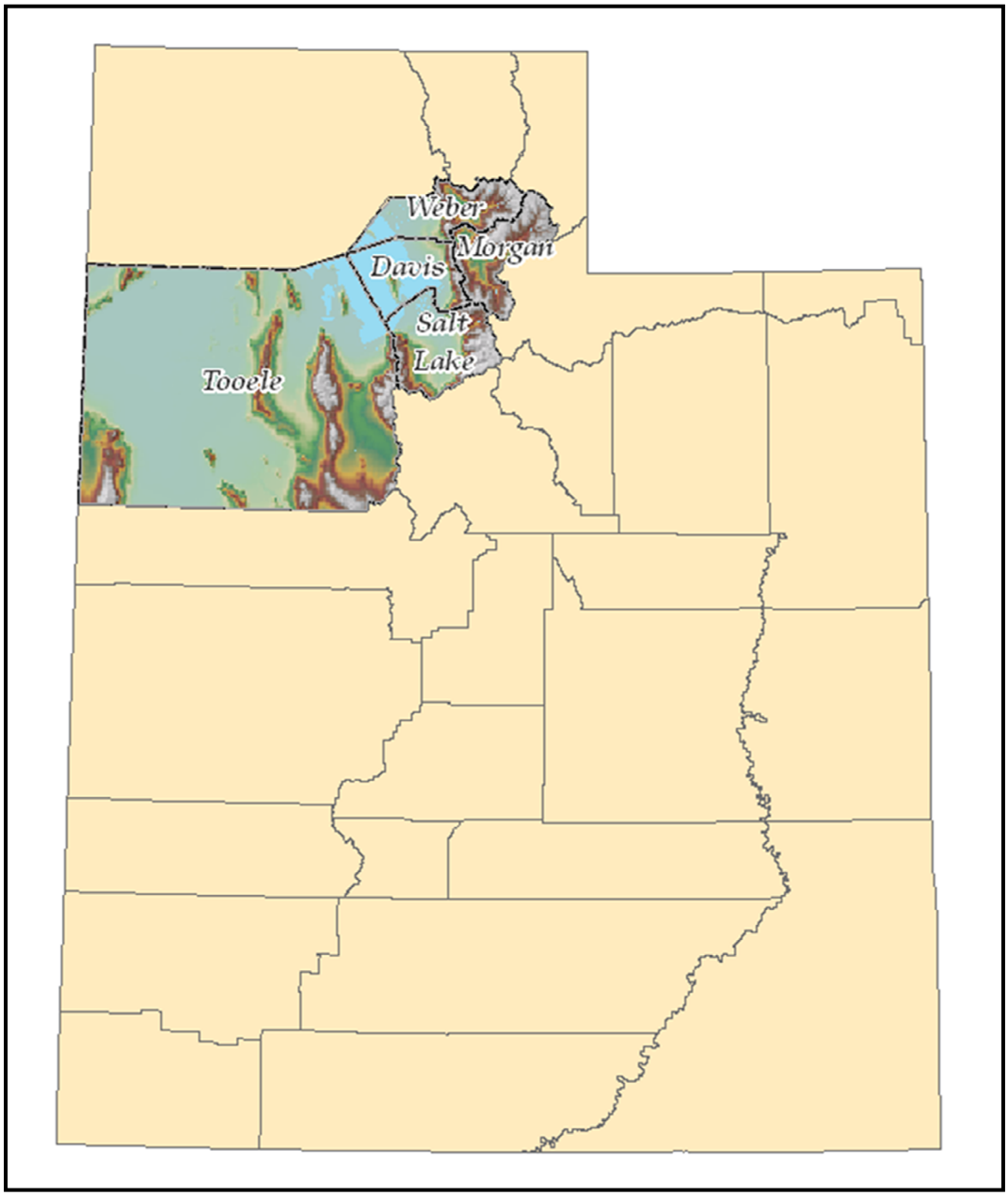


Map 4-1. Wasatch Front Counties

Part V. Regional Data

The Wasatch Front Region comprises Davis, Morgan, Salt Lake, Tooele, and Weber Counties. All are very distinct in regards to geography, population and economy. Salt Lake County is the most urbanized County in the Region as well as the entire State; whereas Tooele County is the least urbanized within the Region. Table 4-1 (next page) identifies the population for each city using WFRC and U.S. Census Bureau population estimates.

Davis County		Morgan County		Salt Lake County		Tooele County		Weber County	
Bountiful	43,295	**Morgan**	3,636	**Town of Alta**	365	**Grantsville**	7,499	**Farr West**	5,093
Centerville	15,831			**Bluffdale**	7,088	**Ophir Town**	23	**Harrisville**	4,934
Clearfield	29,192			**Cottonwood Heights**	34,954	**Rush Valley Town**	466	**Hooper**	4,476
Clinton	19,572			**Draper**	36,873	**Stockton Town**	451	**Huntsville**	716
Farmington	15,916			**Herriman**	14,643	**Tooele**	27,415	**Marriott-Slaterville**	1,546
Fruit Heights	5,269			**Holladay**	25,308	**Vernon Town**	241	**North Ogden**	17,619
Kaysville	25,590			**Midvale**	27,249	**Wendover**	1,537	**Ogden**	80,773
Layton	65,269			**Murray**	44,844			**Plain City**	3,496
North Salt Lake	12,846			**Riverton**	35,543			**Pleasant View**	6,934
South Weber	5,822			**Salt Lake**	178,858			**Riverdale**	8,168
Sunset	5,225			**Sandy**	94,203			**Roy**	36,223
Syracuse	20,788			**South Jordan**	44,009			**South Ogden**	15,228
West Bountiful	5,343			**South Salt Lake**	21,354			**Town of Uintah**	1,139
West Point	8,740			**Taylorsville**	58,048			**Washington Terrace**	8,726
Woods Cross	8,824			**West Jordan**	100,280			**West Haven**	5,939
				West Valley	120,235				
Unincorporated	4,533	**Unincorporated**	5,191	**Unincorporated**	165,704	**Unincorporated**	13,053	**Unincorporated**	15,280

Table 5-1. Local Population Data, 2006, Salt Lake County, 2007 Estimates *(Sources: WFRC)*

A. Geographic and Physiographic Background

Davis County is located in northern Utah with an area of approximately 633 square miles. Two thirds of the county is covered by the Great Salt Lake, allowing for only 233 square miles of usable land, much of which is National Forest. The Great Salt Lake is the largest water body within the state and was named due to its' high salt content. The elevation ranges from 4,200 feet at the Great Salt Lake to 9,547 feet at Francis Peak. Davis County is bordered by Morgan County to the east, Weber County and the Weber River to the northeast, Tooele County to the west, and Salt Lake County to the south (Davis County 2003).

Morgan County is located just east of Davis County in the northern portion of the state. It is the third smallest county making up only 610 square miles. Morgan County's landscape includes the Wasatch Mountain Range, steppe valleys, and the Weber River, which is a major river valley in northern Utah. Two smaller tributaries also run through the county East Canyon Creek and Lost Creek. Morgan County also has farming and grazing lands. The county is bordered to the east by Rich and Summit Counties, the north by Weber County, the west by Davis County and the southwest by Salt Lake County. The county's elevation ranges from 4,895 feet at Mountain Green to 9,547 feet at Francis Peak. Morgan City is the most populated city within the county (Morgan County 2003).

Salt Lake County is the most populous county in Utah and is the State Capital. Salt Lake County is situated between two mountain ranges, the Oquirrh Mountains to the west and the Wasatch Range to the east. The valley floor is approximately 35 miles long from the border with Davis County on the north to the 10-mile long Traverse Mountain Range on the south end of the county's southern border with Utah County. From the west border with Tooele County, it is 33 miles wide east to the borders of Summit, Wasatch and Morgan Counties. The County comprises 764 square miles of mountains, valleys, farming, grazing lands and the Great Salt Lake. The elevation ranges from the historical low of the Great Salt Lake in 1963 of 4,193 feet, to the highest point of the planning region in the Wasatch Range which is 11,330 feet at Twin Peaks.

The Jordan River is the major river drainage in the county, flowing north through the middle of the valley from Utah Lake in Utah County into the Great Salt Lake. Other surface water drainages include Big Cottonwood Creek, Little Cottonwood Creek, Mill Creek, Parleys Creek, Emigration Creek, Red Butte Creek and City Creek. This being the Great Basin, all the surface flows drain into the Great Salt Lake, which also receives inflow from the Weber and Bear Rivers (Salt Lake County 2003).

Tooele County is the second largest county in Utah, with 6,923 square miles of area. Salt Lake and Utah Counties bound it to the east. The southern border is Juab County, the northern border is Davis and Box Elder Counties and the western border is the State of Nevada. Most of the County's population lives in the eastern valleys where most of the irrigated and dry farmland is also located. Several hundred square miles in the western part of the county are arid desert, are largely owned by the federal government, and are sparsely populated. The County includes a portion of the Great Salt Lake desert, salt flats and is generally uncultivated. Altitudes range from 4200 at the Great Salt Lake to 11,031 feet above sea level at the top of Deseret Peak in the Stansbury Mountains (Tooele County 2001).

Weber County is located in the north-central part of the state and is the second smallest county in terms of land area, yet the fourth most populous. Weber County has a total of 662 square miles. The Great Salt Lake covers approximately 112 square miles of the county's area. Elevation ranges from 4200 feet at the Great Salt Lake to over 9,700 feet at Ben Lomond Peak.

The eastern half of Weber County is a high alpine valley and a mountain area, while the western portion is a flat fertile plain formed by alluvial deposits from Lake Bonneville. The Weber River and its tributaries the Ogden River, Coldwater Creek, Burch Creek and several other smaller creeks, are the main river drainages. The Weber River drainage covers approximately 2,460 square miles. The county is bordered by Box Elder County on the west, Cache and Rich Counties on the north, Morgan County on the east and Davis County on the south (Weber County 2000).

B. Geology

The Wasatch Front Region is comprised of the Wasatch, Uintah, Oquirrh and Stansbury Mountain Ranges. The Wasatch Mountain Range runs north-south and is the eastern border of the valley region of the Wasatch Front. The Uintah Mountain Range runs east-west and is the eastern most range of the Great Basin, which is part of the much larger Basin and Range Province. The Oquirrh Mountain Range, running north-south, forms the border between Salt Lake and Tooele County. The Stansbury Mountains form the western side of the Tooele valley.

The geology of this region is a product of Miocene Epoch faulting and folding followed by a period of upheaval. The upheaval raised the valley 3,000 to 5,000 feet in a dome like manner during the Tertiary Period. This disturbance of the valley floor created a tension and a build-up of stress. To accommodate for the change, "block-faulting" occurred that allowed for the uplift of the mountain ranges and depression of the valley floor. This depression extends to the lowest portion of the Wasatch Front Region: the Great Salt Lake. Erosion is now the main geologic process of this area.

The Uintah and Wasatch Ranges are comprised of mainly tertiary lake deposits and tertiary and quaternary volcanic rocks as well as younger Precambrian sedimentary rocks. To the north of Salt Lake City on the Wasatch Front, the hardest, highly altered metamorphosed rocks of schist and gneiss are found and date back about 2.6 billion years. Paleozoic marine sedimentary rocks surround the Precambrian areas of the Range. The Paleozoic sedimentary rocks have a very weak make-up and, in conjunction with Utah's heavy precipitation during the winter and summer months, many landslides, avalanches, debris flows, and rockfalls occur.

The north end of the Oquirrh Mountain group is almost entirely Pennsylvanian and Permian sedimentary rock. The south end of the Oquirrh Mountains is made up of tertiary granite and is home to the worlds' largest open pit mine, the Bingham Copper Mine. The Salt Flats in the western portion of Tooele County are a remnant of Lake Bonneville's fine compressed sediment, comprised of salt that includes gypsum, potash, and calcium carbonate.

C. Climate

Northern Utah has a cold desert climate. Utah has hot dry summers and cold winters. However, Utah's climate is variable, wet in some areas of the state and dry in others. This variability is a function of latitude, elevation, topography, and distance from moisture sources. The Wasatch Front region's climate borders a semi-arid, mid-latitude steppe climate that occurs along the perimeter of the Great Basin Desert, and a humid continental climate found at slightly higher elevations in the Rocky Mountain foothills (Critchfield, 1974).

Northern Utah has four seasons, low annual precipitation, convective and frontal storms, dry summers, low humidity, and large annual and diurnal temperature extremes. The Wasatch Mountain Range brings most of the precipitation to the valley floor. The winter months bring heavy snow accumulation over the mountains that are favorable for winter sport activities.

Spring runoff is at its peak from April through June and can cause flooding along the lower streams. Flash flooding from summer thunderstorms affects smaller more localized areas in this region from summer thunderstorms.

The average annual precipitation in the Wasatch Mountain Range can be more than 40 inches, while the Great Salt Lake desert averages less than 5 inches annually. The average annual precipitation at the Salt Lake International Airport is 15.3 inches, with an average of 58.9 inches of snowfall. Utah is the second driest state in the nation.

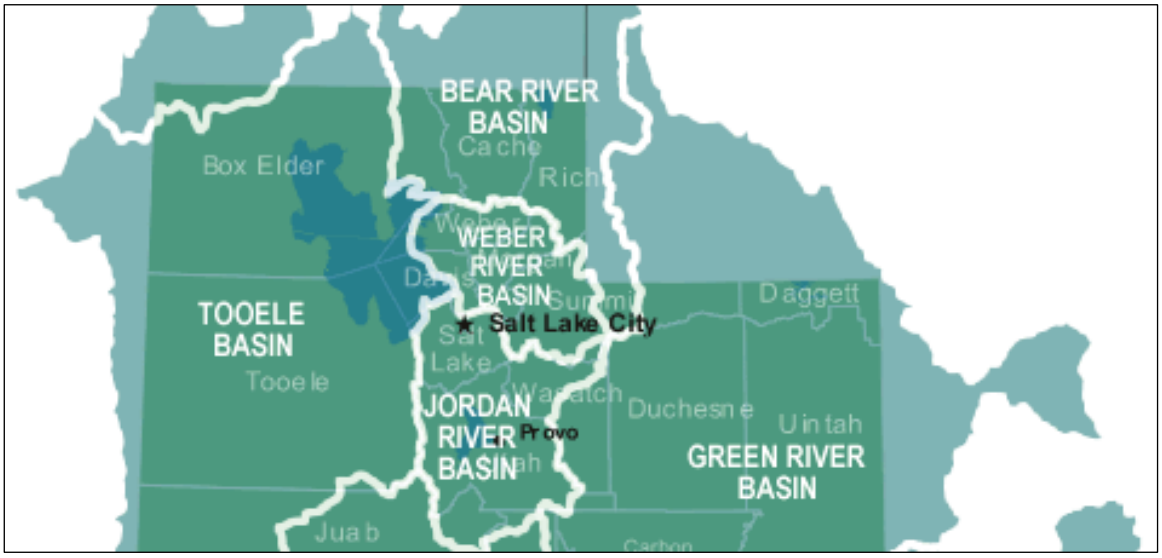
The surrounding mountain ranges act as a barrier to the cold continental arctic masses. This also insulates the area during the day and cools the area rapidly at night. On clear nights, the colder air accumulates on the valley floor, while the foothills and benches remain relatively warm.

During the fall and winter months, smoke, haze, and fog can accumulate in the lower levels of stagnant air over the valley floor and can last for several weeks at a time. This is caused by areas of sinking air or high-pressure anticyclones settling over the Great Basin.

Average wind speeds are usually light to moderate, usually below 20 miles per hour. Strong winds can occur in localized areas, mainly in canyon mouths along the western slopes of the Wasatch Mountains. Dust storms can occur in the western portions of the region. Tornadoes have occurred in this region but are uncommon. Severe hailstorms have also occurred in the region during the spring and summer months.

D. Major Rivers

Most of Utah's water is from snowmelt that occurs during the spring and summer. Larger drainages or river basins are formed from the mountain ravines or depressions that merge into perennial rivers and then meet forming the larger drainages. The Greater Wasatch Front Area includes the Jordan River Basin and portions of the Weber River, Tooele and Bear River Basins.



Map 5-1. Area Drainage Basins *(Source: USGS 2006)*

Agricultural irrigation is the primary use of developed water in Utah, but municipal, industrial, environmental and recreational uses are increasing and this competition will reform the way water is utilized. With the growing population, agricultural land has decreased, with residential and commercial development on the rise. According to the Utah Water Plan, the Jordan River, Bear River and the Weber River Basins are all projected to lose a significant amount of agricultural lands over the next few decades.

Water and Drought

Utah is the second driest state in the nation and ranks second in per capita water use of public supplies. According to the Utah Division of Water Resources, Utah last experienced drought conditions from 1999 to 2004 on a statewide level. Decreased flow from major rivers has led to a decline in most of the reservoir levels and in the Great Salt Lake. The latest drought is unusual because of the severity. The 2002 water year was one of the driest ever recorded (Utah Division of Water Resources 2007).

E. Development Trends

All counties along the Wasatch Front Region of Northern Utah (Davis, Morgan, Salt Lake, Tooele, and Weber) will continue to grow. Despite nationwide trends, Utah continues to develop. In general, the "developable" areas are bounded by the Great Salt Lake and the Stansbury Mountains to the west, the Wasatch Mountains to the east, Utah County to the south and Box Elder County to the north. See Table 4-3 (next page) for projected population and household growth in Davis, Morgan, Salt Lake, Tooele and Weber counties.

Davis, Salt Lake, and Weber counties have been known as the urban core of the Wasatch Front Region. Traditionally, almost all growth has occurred in these three counties, however, now Morgan and Tooele counties are experiencing more growth and development pressures.

Morgan County's growth is likely to be not as dramatic as growth in Davis, Salt Lake, and Weber counties. Morgan County's motto is "the best of rural America." Morgan County is sometimes referred to as being part of the "Wasatch Back" (with Summit and Wasatch counties). The "Wasatch Back" is facing great development pressures while still desiring to maintain a rural lifestyle.

Morgan County's growth has been almost all residential on previously agricultural parcels. Some residential growth has occurred on sensitive soils in the Mountain Green area. Most residents commute to work in Weber, Davis and Salt Lake counties. Morgan County is working on economic development to diversify and expand its tax base with the desire to also maintain their rural lifestyle. Like the Ogden Valley area of Weber County, property values continue to escalate.

Tooele County is one of Utah's fastest growing counties. Most of Tooele County's growth is residential, occurring in the Tooele/Grantsville area. Tooele County has become an affordable housing bedroom community for Salt Lake County.

Salt Lake County is continuing to infill with residential growth in the south valley area between the Kennecott Copper Daybreak development on the Oquirrh Mountains to the west and the Wasatch National Forest property on the Wasatch Mountains to the east.

Davis County's residential growth will continue to infill previous agricultural and industrial fringe. Some of the residential growth appears to be occurring on more sensitive lands such as hillsides and low lying areas towards the Great Salt Lake. Most growth is occurring in northern Davis County. The opening of the Legacy Parkway in 2008 provided a much needed alternate north/south transportation expressway through the county. The planned Legacy Highway north extension will further facilitate transportation into Weber County.

Weber County's residential growth has been moving west into agricultural lands near the Great Salt Lake. Growth pressures and the demand for a rural atmosphere continue to inflate property values in the Ogden Valley. Development pressure in west Weber County has placed a premium on the availability of drinking and secondary water. The ground is so flat near the lake that sewage must be pumped to treatment plants.

Septic systems are no longer permitted due to the negative impact to groundwater supplies. The Weber-Morgan Health Department has been pursuing funding for a ground water study in west Weber and Morgan counties.

Population growth in the planning region is attributed primarily to residents having children. Some residential growth is attributed to in-migration due to the area's strong job market. Nationally, growth is occurring in the west and in the south.

Area	2000 Population	2010 Population	2020 Population	2030 Population	% Growth 2000-2030
Davis County	240,204	323,087	369,467	390,159	62.4%
Morgan County	7,181	10,589	16,756	24,478	240.9%
Salt Lake County	902,777	1,079,679	1,273,929	1,468,615	62.7%
Tooele County	41,549	63,777	91,849	119,871	188.5%
Weber County	197,541	232,696	278,256	320,634	62.3%
Region	**1,389,252**	**1,709,828**	**2,030,257**	**2,323,757**	**67.3%**
Area	**2000 Households**	**2010 Households**	**2020 Households**	**2030 Households**	**% Growth 2000-2030**
Davis County	71,698	102,444	122,029	135,759	89.3%
Morgan County	2,069	3,348	5,517	8,198	296.2%
Salt Lake County	297,064	369,665	453,993	544,378	83.3%
Tooele County	12,931	20,772	32,056	44,391	243.3%
Weber County	66,082	80,279	99,428	119,489	80.8%
Region	**449,844**	**576,508**	**713.023**	**852,215**	**89.5%**
Area	**2000 Household Size**	**2010 Household Size**	**2020 Household Size**	**2030 Household Size**	**Change 2000-2030**
Davis County	3.30	3.11	2.98	2.82	-0.48
Morgan County	3.47	3.16	3.04	2.99	-0.48
Salt Lake County	2.99	2.88	2.76	2.65	-0.34
Tooele County	3.11	2.98	2.78	2.62	-0.49
Weber County	2.94	2.92	2.88	2.64	-0.30
Region	**3.04**	**2.92**	**2.80**	**2.68**	**-0.36**
Area	**2001 Employment**	**2010 Employment**	**2020 Employment**	**2030 Employment**	**% Growth 2000-2030**
Davis County	125,330	169,750	200,044	209,651	67.3%
Morgan County	3,135	4,212	7,676	11,497	266.7%
Salt Lake County	663,866	790,393	781,221	994,647	49.8%
Tooele County	16,172	24,998	37,469	50,980	215.2%
Weber County	108,233	129,971	156,377	181,205	67.4%
Region	**916,736**	**1,119,324**	**1,298,823**	**1,447,980**	**57.9%**

Table 5-2 Population and Household Projected Trends (UPEC 2008)

The region's population is projected to continue to increase exponentially. This will result in housing cost increases greater than the rate of inflation. Higher population densities are projected to be concentrated in currently developed areas with recent development occurring at lower densities in the outlying areas.

New commercial development is projected in South Jordan City, Riverton City, and Tooele County. Dispersed areas of commercial development are starting to appear, such as in the Fort Union/Union Park area, the Cottonwood Corporate Center and Jordan Landing. Small pockets of neighborhood scale commercial development are expected throughout the region in an effort to adhere to Envision Utah principles in making neighborhoods more pedestrian friendly.

Development Constraints/Opportunities

Influences on development are many and interrelated. A few are geographic, historic layout, transportation, household size, technology, employment trends and public policy. Development influences can encourage and/or discourage growth. For example, floodplains, wetlands, slopes and faults, sensitive species and transportation influences both attract and detract development.

Geographic

Geographic constraints on the urban area have created a linear region that stretches more than 60 miles north to south, from Pleasant View on the north and south to Bluffdale. At its widest, the valley is only 15 miles wide. This unique geographic layout has resulted in the development of a transportation system that is focused on the north-south movement of goods and people.

Floodplains

There are a number of identified floodplains in the region that pose challenges, command respect and generate appeal for development. The three urbanized counties of Weber, Davis and Salt Lake are bisected by numerous rivers and streams, which emanate from the mountains and flow westward into the Great Salt Lake. In Weber County, the Ogden/Weber River system is the most significant. In Morgan County, the Weber River receives water from its significant tributaries; Hardscrabble Creek, Deep Creek, Lost Creek, East Canyon Creek and Cottonwood Creek. In Davis County, several small creeks, such as Kays, Farmington, Davis, Deuel, North Canyon and others flow from the mountains into the lake. In Salt Lake County, streams from the major mountain canyons flow into the Jordan River, which flows through the middle of the Salt Lake Valley. Among these are Little and Big Cottonwood Creeks, Mill Creek, Parley's Creek, Emigration Creek and City Creek. There are other streams too numerous to mention here, but some flow through open channels while sections of others are piped underground. While development is challenged by the floodplain, it is also attracted to it.

Wetlands

Wetlands are those areas that are inundated or saturated with surface or groundwater at a frequency and duration sufficient to normally support a prevalence of vegetation typically adapted for life in saturated soil conditions. The greatest and most significant complex of wetlands in the intermountain area can be found adjacent to and surrounding the Great Salt Lake. These wetlands provide important habitat to resident wildlife and are also an internationally significant habitat. As many as one million migratory shorebirds and waterfowl utilize the Great Salt Lake wetlands during annual migrations across North America. A majority of these wetlands are found on the east side of the lake. The east side of the lake is where the lake receives most of the fresh water and also where development pressures are occurring.

Numerous rivers and streams flow into the lake, supplying this area with the fresh water needed to support wetlands plant and animal life. Wetlands can also be found adjacent to the streams, particularly in areas where the streams flow through relatively flat topography or low-lying areas.

Wetlands can be categorized according to their quality and type. Jurisdictional wetlands are those wetlands that are within the extent of the U.S. Army Corps of Engineers (USACE) regulatory overview.

For an area to be identified as a jurisdictional wetland, the area must exhibit positive indicators of wetland hydrology, hydrophytic vegetation and hydric soils. If wetlands provide a particularly rich habitat for a variety of wildlife species, it is usually considered to be of high quality, or have a high functional value. Also, wetlands can be classified according to their type, including marsh, wet meadow, riparian scrub, playa/mudflat and open water.

Farmlands

Over the past several years, many acres of farmland in the area have been developed. Morgan and Tooele counties still maintain a good percentage of their land in agriculture. The remaining farmlands where crops are being produced are located in the western portion of Weber County, and to a lesser degree, in western portions of Davis County, between I-15 and the lake and the Salt Lake Valley. There is a limited amount of prime/unique farmland and farmland of statewide importance in western Weber County, northern Davis County and western Salt Lake Valley. Historically, development followed farmland in an agrarian economy.

Farmlands of statewide importance are not as good as prime farmlands, but are nevertheless important to the agricultural base of the area. These farmlands have more limitations than prime farmlands, such as steeper slope, high water table and alkali problems. However, these lands can be made just as productive as the prime farmlands with proper management of the land. If farmlands of the type described above are located within incorporated city limits, it is presumed they will be eventually developed into urban type land uses. Currently, a majority of the acreage of these farmlands is being used to grow winter (dry farm) wheat and alfalfa.

Slopes and Faults

The steep slopes of the Wasatch Mountain Range were created by the Wasatch Fault, which runs the entire length of the urbanized areas. The Wasatch Fault and other faults in the area highlight the potential for earthquakes in the area and the need to consider their possible impact on infrastructure. As development continues to creep higher on the foothills of the Wasatch Mountains, slope stability, erosion and drainage problems will present engineering challenges in development design. Development is usually attracted more to the views of slopes and faults than repelled by the higher risk of soil instability.

Open Space

Open Space is a large influence to residential and commercial development. Generally, people are attracted to open space. The Wasatch Front Region is surrounded by relatively large amounts of open space. Currently, in Morgan County, large amounts of land are privately held open space, and in Tooele County, large amounts of land are owned by the federal government. The urbanized area is fortunate to have exceptional public open space in the mountains to the east and to the west of the valleys. Most of the open space to the east of the Wasatch Front Urban Area is part of the Wasatch National Forest, which is administered by the U.S. Forest Service. The Bureau of Land Management primarily administers the open space in the west desert area of Tooele County. Some notable peaks in Wasatch Range just east of the Weber/Davis area are Ben Lomond Peak, Mount Ogden, Thurston Peak and Francis Peak. In the Salt Lake area, Lone Peak, Broadfork Twin Peak and Mt. Olympus are significant. Numerous nationally recognized winter and summer recreation areas for skiers, hikers and rock climbers are in close proximity. As a consequence, hundreds of thousands of people visit the public lands in the foothills and mountains of the Wasatch annually.

Less notable and frequented, are the mountains to the west of the urbanized areas, such as the Oquirrh Mountains that divide Salt Lake and Tooele Counties. There are several natural streams emanating from these mountains as well as canyons that are mostly frequented by people living nearby. The majority of the Oquirrh Mountains is owned by Kennecott Copper Corporation, and is not generally available to the public for open space use.

Other open space features in the area are the Jordan River Parkway, which runs along almost the entire length of the Jordan River in Salt Lake County, the Great Salt Lake and associated shorelines, Antelope Island in the Great Salt Lake in Davis County; and the Farmington Bay Bird Refuge; which is a fresh water bay created by a dike of the Great Salt Lake. Over the past several years, population growth in the urbanized areas has impacted the open space resources of the Wasatch Range in a variety of ways. Two of these ways are mentioned here. First, there are many more people visiting the popular places in the adjacent mountains. This has jeopardized the environmental quality of the mountains by degrading surface and ground water quality. The Wasatch Range is a major source of water for the adjacent urbanized areas, and water quality degradation can have far-reaching effects. Secondly, many access points or trail heads to the canyon and other mountain destinations located on public lands that were commonly used in the past have been closed off to the public by private developments. The effect of this is that much of the public open space becomes inaccessible and the opportunity to visit these popular places becomes lost. Remaining access to non-private lands is channeled through an ever-decreasing number of public access points.

Not only can open space resources be found in the mountains of the Wasatch, but private and public open space is also found in the valleys in the form of farms, developed and natural parks, golf courses, water features and vacant land. In many instances, these resources may receive more intensive use than those found in the adjacent mountains. Because of the rapid growth in the area, citizens as well as state and local political leaders have become concerned about the relatively rapid loss of private open space resources, such as farmland and vacant land. Urban growth has put considerable pressure on the farmlands that can still be found in, or adjacent to, the urbanized areas. Some individuals and lawmakers value farmlands and would like to see some of them preserved for future generations. Management and development of open space has many questions – how, where, and to what degree will these lands be preserved?

Some agricultural lands are receiving state designation as farmland preserves through the use of conservation easements and favorable tax treatments. These designations assist farmers in preserving their lands for future agricultural use and provide aesthetically pleasing open space today. However, as development pressure and property values increase, it may become increasingly difficult to keep many agricultural lands in agriculture preserves. Policy decisions relative to open space will affect land use and development patterns, and, as a consequence, will also affect long range plans for the region's transportation systems.

Hazardous Waste Sites

Currently there are numerous hazardous waste sites, or contaminant sources, located within the urbanized areas. Many of these sources are in relatively close proximity to transportation projects. Construction through potential contaminant sources may add health and safety concerns and affect construction budget expenditures. The impact of these sites on transportation facilities will need to be addressed during the design and construction phase of each highway or transit project.

There are potentially five types of contaminant sources: underground storage tanks, Title 3 sites, Toxic Release Inventory (TRI) 1990 sites, Resource Conservation and Recovery Act (RCRA) sites and Comprehensive Environmental Response Compensation and Liability Act (CERCLA) sites.

The Comprehensive Environmental Response, Compensation and Liability Inventory System (CERCLIS) database documents hazardous waste sites where a release or potential threatened release, has been investigated. These sites are further defined as a location that has been reported to the Environmental Protection Agency and where it is probable that some environmentally hazardous materials are present. Also, the State of Utah Division of Solid and Hazardous Waste maintains databases for underground storage tank facilities, Leaking Underground Storage Tank (LUST) sites, and RCRA facilities.

Sensitive Species

Sensitive species are plants and animals, which are considered, threatened or endangered relative to extinction. There are currently 21 species in the Wasatch Front Urban Area that fall into the sensitive species category. The most notable of these are the peregrine falcon, bald eagle, and Ute ladies tresses which are all on the federal list of endangered and threatened species. Both peregrine falcon and bald eagle sightings have been reported over the past few years on a fairly regular basis. Some examples of other less notable sensitive species, which are known to inhabit certain areas of the Wasatch Front region, include the spotted frog, least chub, western burrowing owl, ferruginous hawk, white faced ibis, Bonneville cutthroat trout, pocket gopher and others. The likelihood of these and other sensitive species being present in the region will depend on whether or not suitable habitats exist.

Ground Water

Much of the water flowing in streams and interfluvial areas seeps into the ground. The foothills and the base of the mountains are the locations where much of this water seeps into the ground. These locations are referred to as aquifer recharge areas. Water is stored in aquifers of various types. A considerable amount of the Wasatch Front Region's water resources comes from these aquifers, which can be tapped through wells or natural artesian springs. The Salt Lake International Airport receives only about 15 inches of precipitation a year, yet the benches and ski areas can annually receive 60 to 100 inches of precipitation. This contrast in precipitation can be a challenge in determining best development. Past and present human activities have affected these ground water resources in certain locations. If precautions are not taken, harmful substances found in landfills and mine tailings can be leached by rain and snow and find its way into the ground water resources. One example of this situation includes the leaching of heavy metals from the Kennecott Mine tailings, which has contaminated some of the ground water supply of southwestern Salt Lake County. There is also a plume of contaminated groundwater slowly moving westward near Sunset, caused by the inappropriate disposal of solvents and other chemicals for decades at Hill Air Force Base.

Historical Development Layout

Historically, development has occurred according to the "Plat of Zion." Many of the areas along the Wasatch Front have street layouts based on the "Plat of Zion", implemented by Brigham Young when the Mormon Pioneers permanently settled the area beginning in1847. This concept is based on a grid of 10-acre blocks with wide streets. While the concept is apparent in central city areas, the suburbs deviate. Historically, the street network and connecting highways served the local areas. Intercity travel was via the Bamberger Railroad, which ran passenger service from Salt Lake City to Ogden from 1891 to 1952. In the 1950's, the federal government instituted the Interstate Highway System. Interstate 15 linked Salt Lake City, Ogden and Provo together with points north and south while Interstate 80 linked the area with points east and west.

Development has also followed along Interstate 15, Highway 89, and major collectors. The recently reconstructed 17-mile segment of I-15 through Salt Lake County forms the backbone of the north-south highway system through the Salt Lake County portion of the Wasatch Front Urbanized Area (WFUA). Other major north-south facilities in Salt Lake County include Redwood Road, Bangerter Highway, State Street, 700 East, and 1300 East. Interstate 215 forms a three-quarter belt around Salt Lake County. Interstate 15 continues north through Davis and Weber Counties and joins Interstate 84 in Weber County. Other major north-south arteries in Davis County include U.S. Highway 89 and the Legacy Parkway. The historic development has followed the geographic constraints particularly in transportation.

Transportation

Large employment centers, such as Hill Air Force Base, University of Utah, Salt Lake City International Airport and the downtown Salt Lake City Central Business District will need to be served with an improved transportation system.

The growth and distribution of population and employment in the WFUA will have a significant impact on the transportation demands in the year 2030. Transportation accessibility is one of the major, if not the most important determining factor, where people live and work. To a large extent, people will live and work where transportation exists. Future development patterns will influence and be influenced by transportation. It is better planning to first conceptually plan for major transportation requirements.

While a majority of the population growth is expected to occur in western and southwestern sections of Salt Lake, Davis, and Weber Counties, Salt Lake City will remain the dominant employment center in the WFUA. Anticipated growth will increase the need for north-south travel in the Region, which is being addressed in part by the recently reconstructed I-15, the Legacy Parkway, and the completion of the Utah Transit Authority's Transit Express (TRAX) light rail transit system between Sandy and downtown Salt Lake City with its additional line to the University of Utah area. Plans for a TRAX line between Sandy and the southwest part of Salt Lake County are well underway with planned completion by 2011. A TRAX line between downtown Salt Lake City and the airport is also planned. The UTA Commuter Rail between Pleasant View and Salt Lake City was completed in 2008. By 2011, the UTA plans to extend the commuter rail north to Brigham City and south into Utah County. In addition, the Salt Lake portion of the WFUA's transportation system will need to serve the growing employment centers in suburban locations by addressing the east-west transportation demands and access to north-south freeways. Finally, travel in the WFUA will increasingly be affected by the population and employment growth in the Ogden/Layton urban area to the north, the Provo/Orem urban area to the south, Summit County to the east and Tooele County to the west.

Air quality is an influence on transportation. Greater awareness and concern for the air quality has resulted in tighter air quality standards and decreased transportation emissions. As the entire WFUA continues to grow, the interrelationships among development and transportation will continue to increase.

These interrelationships have significant impact on the transportation facilities now and in the future. Davis County's transportation system will need to improve east/west capacity to serve employment centers in suburban locations, such as Clearfield City's Freeport Center. Travel demand will continue to grow in direct proportion to projected population increases. The population and employment growth in Davis and Salt Lake Counties to the south and, to a lesser extent, Morgan County to the east and Box Elder County to the north, will increasingly affect travel demand in the Ogden/Layton Urbanized Area.

The growth and distribution of the Wasatch Front population and employment will continue to have a significant impact on the transportation needs of the future. Increases in regional population and employment translate into a growing demand for travel. In addition, the number of miles driven continues to increase. The amount and distribution of growth provide insights into the type, size and location of new transportation facilities required to meet present and future travel demand, including new highway projects, transit improvements, and transportation facilities for bicycles and pedestrians.

Household Size

Even with relatively large families, Utah is following the national downward trend in household size. As the population ages, birthrates fall and the household size decreases. There are areas in the region that will experience a slowing of population growth due to falling household sizes, while others will increase due to neighborhood recycling, where young families with children move into a neighborhood as the aging population dies. Examples of these phenomena are found in the 2000 Census. Sandy City's household size declined while Ogden's and Salt Lake City's increased due to changing demographics. Certain areas of the region will remain undeveloped into the future even with projected high growth.

Technology

As technology develops, its influence on community development touches every aspect dramatically. Technological influences are significant. This report will only very briefly mention a few. Technology advances in communications have made it possible for telecommuting, reduced the requirement of a daily commute to a workplace; increased availability of reliable public transportation has changed where people live and work; advances in agriculture have allowed more food to be produced on less land; and technological advances allow developments on marginal sites.

Reclamation of Industrial Land

Much public and private land will remain undeveloped because of specific environmental constraints, such as steep slopes, prime wetlands, or hazardous substances. However, other environmentally challenging properties are now developable due to advances in technology. Some areas historically used for industrial or mining activity are planned to be reclaimed for other uses. For example, Kennecott's Daybreak community is a 12,000 unit, mixed use development on 4,500 acres in South Jordan.

Employment Trends

In the past 30 years, the Region's economy has diversified, resulting in more widespread development. The region's economy was once heavily dependent on a limited number of industrial sectors, primarily mining (Kennecott Utah Copper Corporation) and government/military (Hill Air Force Base, Internal Revenue Service, State of Utah).

No longer dependent on a limited number of sectors, the Region's economy is now based on the service sector and other industries, such as health care, education, and local government. Agriculture continues to decline in importance on a regional scale. The distribution of commercial and industrial development will remain much as it is today. Much of the Region experienced minimal employment changes, up or down, during the past decade. Overall, large employment gains are occurring in suburban areas.

Public Policy

Under Utah State law, local cities and counties are responsible for setting land use policy in their areas. Projections for the Wasatch Urban Area Long Range Transportation Plan: 2007-2030 is based on individual city and county land use assumptions. A majority of the region is expected to be developed for residential uses. These local master plans call for relatively low-density residential and non-residential development patterns, with some pockets of denser activity. Large areas of industrial/warehouse development are planned in western Salt Lake City, along the I-15 corridor, and around Hill Air Force Base. High-density office and commercial developments are focused mainly in the Salt Lake and Ogden central business districts, with smaller commercial areas located in southern Salt Lake County, northern Davis County, and southern Weber County. Additional smaller nodes of commercial and retail development are dispersed throughout urban and rural portions of Salt Lake, Davis, and Weber Counties.

The Utah Quality Growth Act of 1999 created the Utah Quality Growth Commission to address the challenges and opportunities that growth brings to Utah. In addition, several public and private partnership planning efforts involved in smart growth initiatives have developed land use alternatives and growth scenarios. Envision Utah's outreach presentations provided local public officials and the general public the opportunity to examine the future consequences of various land use decisions. The growth scenarios ranged from the status quo land use planning to a demonstration of much greater density. These planning exercises and demonstrations proved beneficial in educating participants about development options and their anticipated consequences.

A significant portion of Salt Lake, Davis, and Weber Counties is currently zoned for low-density residential development. Some higher densities are allowed in eastern Salt Lake City, while the southeast and southwest areas of Salt Lake County are zoned for lower housing densities. Industrial land uses are planned for west Salt Lake City, along the I-15 corridor, northern West Valley City, the western portion of North Salt Lake, and the west side of Salt Lake County. Areas for commercial land uses include concentrations in Salt Lake City's central business district and along primary transportation corridors including I-15, I-215, State Street, 400 South, Highland Drive, 3500 South, 4500 South and 7200 South. Additional commercial land use nodes are dispersed throughout Salt Lake County and southern Davis County to serve adjoining residential communities. An extension of the existing transportation network will provide needed highway and transit service to newly developed land. As land use changes, so will the type and size of facilities needed to meet increased travel demand.

Future land use characteristics of the Ogden/Layton urban area will play a key role in determining future development trends. Large portions of western Weber and north Davis Counties are currently zoned for low-density residential development. Some higher density housing is being built in Ogden City's Canyon Road community. Industrial land uses are located at the redeveloped Business Depot Ogden, the Falcon Hill development on Hill Air Force Base, the Ogden City Industrial Park and Clearfield's Freeport Center.

Areas for commercial land uses include linear concentrations along major arterial roads including Riverdale Road, the southeastern portion of Harrison Blvd., 12th Street between Washington Blvd. and I-15, Hill Field Road near the Layton Hills Mall, State Street (Layton and Clearfield) and Main Street (Kaysville, Clearfield and Sunset). Additional commercial nodes are dispersed throughout the Ogden/Layton Urbanized Area to serve adjoining residential communities.

Public policy is the greatest contributing factor in development. This report has briefly mentioned the general development trends in the region and county as well as the contributing and limiting influences on development. Ultimately, the many development constraints and influences are measured, weighed, compared, and balanced in public policy.

Development public policy is articulated in Master Plans (sometimes referred to as General Plans, Land Use Management Codes, and other planning documents). Master Plans and Land Use Management Codes are formally adopted by city or county councils whereas other planning documents may not receive formal adoption. All Region counties continue to update their Master Plans and Land Use Management Codes. The counties have cooperated in producing the Wasatch Front Regional Open Space Plan. This Plan gives each county guidelines for preserving and developing open space. The urban counties in the region (Davis, Salt Lake, and Weber) have been supportive of Envision Utah. Envision Utah is partially State supported to advocate smart growth. Envision Utah defines "smart growth" as growth that requires minimal infrastructure and maximizes environmental and human benefits.